ABSTRACT

Disclosed is a method for generating a space-time trellis code (STTC) for maximizing space-time diversity gain and coding gain in a mobile communication system including at least two transmission antennas and generating a second number of STTC codes with an information data bit stream upon receiving the information data bit stream comprised of a first number of bits. The method comprises calculating a minimum effective length for each of the STTC codes; calculating product distances between all STTC codes having the same length as the minimum effective length, wherein for each of pairs of all initial states and all end states for each of the STTC codes, initial states are identical to end states; summing reciprocals of product distances between all the STTC codes for each of the STTC codes, and calculating minimum average product distances by determining a reciprocal of the summation result; and selecting an STTC code corresponding to a minimum average product distance having a maximum value among the minimum average product distances as an STTC code corresponding to the information data bit stream.